

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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*Ex parte* Abraham P. Ittycheriah, Stephane H. Maes, and Jan Sedivy

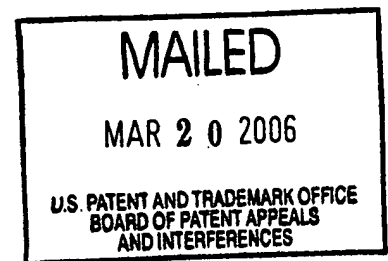
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Appeal No. 2005-2282  
Application No. 09/505,807

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ON BRIEF

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Before RUGGIERO, GROSS, and BARRY, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

A patent examiner rejected claims 1 and 3-27. The appellants appeal therefrom under 35 U.S.C. § 134(a). We affirm-in-part.

**I. BACKGROUND**

The invention at issue on appeal manages the sharing of audio data between speech technologies. In many speech/audio processing systems, explain the appellants, audio data or processed speech data are stored in buffers for consumption and processing by speech engines. They add that the conventional speech/audio

processing systems, however, typically do not include mechanism for managing the consumption of data from the buffers. (Spec. at 1.)

Accordingly, as shown in Figure 5 of the appellants' specification, their invention features a first queue (305) for storing data received from a data source (303). Consumers (306) and (307) share the stored data. (Appeal Br. at 2.) The consumers may include speech engines such as feature extraction engines, speech decoding engines, and speaker identification/verification engines, as well as data compression and decompression engines. (Spec. at 4.) A scheduler (302) controls the data source and the consumers to, in turn, control the amount of data stored in and consumed from the first queue. (Appeal Br. at 2.)

A further understanding of the invention can be achieved by reading the following claims.

1. A system for sharing data between multiple consumers, comprising:
  - a first queue for storing data;
  - a data source for outputting the data that is stored in the first queue;
  - a plurality of consumers each sharing the data stored in the first queue; and

a scheduler for managing the storage and consumption of the data in the first queue and for controlling the data source and the plurality of consumers to control the amount of data stored in and consumed from the first queue.

3. The system of claim 1, wherein the data source comprises a consumer that consumes data stored in a second queue that is controlled by the scheduler.

4. The system of claim 1, wherein each of the plurality of consumers performs a registration process with the scheduler.

16. A method for sharing data between multiple consumers, comprising the steps of:

storing data received from a data source in a first queue;

sharing the data in the first queue between a plurality of consumers; and

managing the storage and consumption of the data in the first queue, wherein managing comprises controlling the data source and the plurality of consumers to control the amount of data stored in and consumed from the first queue.

20. The method of claim 17, further comprising the step of prioritizing data consumption of the first queue based on an amount of unread data in the first queue of each of the plurality of consumers.

Claims 1, 3-6, 8-18, 20-25, and 27 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,519,686 ("Woodring"). Claims 7, 19, and 26 stand

rejected under 35 U.S.C. § 103(a) as obvious over Woodring and U.S. Patent No. 4,916,658 ("Lee").

## II. OPINION

Our opinion addresses the rejections in the following order:

- claims 1, 7, 9-16, 19, 21-23, and 26.
- claim 3
- claims 4-6, 17, 18, 24, and 25
- claims 8, 20, and 27.

### A. CLAIMS 1, 7, 9-16, 19, 21-23, AND 26

"[T]o assure separate review by the Board of individual claims within each group of claims subject to a common ground of rejection, an appellant's brief to the Board must contain a clear statement for each rejection: (a) asserting that the patentability of claims within the group of claims subject to this rejection do not stand or fall together, and (b) identifying which individual claim or claims within the group are separately patentable and the reasons why the examiner's rejection should not be sustained."

*In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) (citing 37 C.F.R. §1.192(c)(7)). "If the brief fails to meet either requirement, the Board is free to select a single claim from each group of claims subject to a common ground of

rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim." *Id.*, 63 USPQ2d at 1465.

Here, the appellants argue claims 1, 9-16, and 21-23 as a group. (Appeal Br. at 4-9.) We select claim 16 from the group as representative of the claims therein.

With this representation in mind, rather than reiterate the positions of the examiner or the appellants *in toto*, we focus on the point of contention therebetween.

The examiner correctly makes the following findings.

Woodring discloses that the storage manager 350 includes a free buffer semaphore (FBSEM) mechanism 376 (Fig. 4). The FBSEM 376 controls the producer 310, for example, by signaling the producer that one or more buffers in buffer storage 372 (first queue) are free (col. 7, lines 61-63). The storage manager 350 also includes the producer mutual exclusion mechanism (MUTEX) 374, which controls the producer by placing a requirement on the producer to acquire exclusive ownership (col. 7, lines 52-60) before accessing management data for the buffer storage (first queue). The storage manager 350 also includes a variety of mechanisms to control the clients (consumers) as they receive data from the buffer storage 372 (first queue) such as the mail slots (col. 7, lines 1-20), management data structure and information streams (col. 7, lines 19-39), and the buffer masks (col. 7, lines 45-52).

The appellants argue, "there is *no* notion that the storage manager (350) actively controls the data source (producer) and the plurality of consumers to control the

amount of data stored in and consumed from the queue, as contemplated with the claimed inventions." (Appeal Br. at 6-7.)

In addressing the point of contention, the Board conducts a two-step analysis. First, we construe the representative claim to determine its scope. Second, we determine whether the construed claim is anticipated.

#### *1. Claim Construction*

"Analysis begins with a key legal question — *what is the invention claimed?*" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question, "the Board must give claims their broadest reasonable construction. . . ." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000).

Here, claim 16 recites in pertinent part the following limitations: "controlling the data source and the plurality of consumers to control the amount of data stored in and consumed from the first queue." Giving the representative claim its broadest, reasonable construction, the limitations require controlling a source and consumers to, in turn, control the amount of data stored in and consumed from a queue.

## 2. Anticipation Determination

"Having construed the claim limitations at issue, we now compare the claims to the prior art to determine if the prior art anticipates those claims." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349, 64 USPQ2d 1202, 1206 (Fed. Cir. 2002).

"[A]nticipation is a question of fact." *Hyatt*, 211 F.3d at 1371, 54 USPQ2d at 1667 (citing *Bischoff v. Wethered*, 76 U.S. (9 Wall.) 812, 814-15 (1869); *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997)). "A reference anticipates a claim if it discloses the claimed invention 'such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention.'" *In re Graves*, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995) (quoting *In re LeGrice*, 301 F.2d 929, 936, 133 USPQ 365, 372 (CCPA 1962)).

Here, Woodring discloses ". . . streaming an information stream from a producer to N consumers in a multi-process environment. An inter-process communication (IPC) channel containing a shared memory is provided between the producer and at least one of N consumers. The information stream is written into the shared memory by way of a producer-side interface. The information stream is read from the shared memory by way of a consumer-side interface." Col. 1, l. 66 - col. 2, l. 7.

In Figure 4 of the reference, "the IPC channel system architecture 300 is shown." Col. 6, l. 9. More specifically, "[t]he IPC channel system architecture 300 comprises a producer 310, N consumers 320<sub>0</sub> through 320<sub>N-1</sub>, and the IPC channel 330." *Id.* at ll. 12-14. It is uncontested that Woodring's producer and consumers respectively teach the claimed source and consumers.

In the IPC channel system architecture 300, a "buffer storage 372 stores the actual information stream that is to be accessed by the client consumers. The buffer storage 372 may contain a block of video data, a segment of audio, a block of text data, or any other data being transferred between the producer and the consumers." Col. 7, ll. 38-42. It is uncontested that Woodring's buffer storage 372 teaches the claimed queue in which data are stored from which data are consumed.

Also in the IPC channel system architecture 300, a "storage manager 350 comprises . . . a buffer mask 364, . . . an update MUTEX mechanism 374, and an IPC free buffer semaphore (IPC FBSEM) mechanism 376." *Id.* at ll. 23-27. "The update MUTEX mechanism 374 provides mutually exclusive access by the producer and all consumers to the management data structures. . . . In other words, if the producer, or



any consumer, needs to read or update the buffer masks . . . , they must first acquire exclusive ownership of the MUTEX 374." *Id.* at ll. 52-58.

"The free buffer semaphore, FBSEM mechanism 376, is used [to] signal to the producer that one or more buffers in the buffer storage 372 are free and available for further use. When no buffers are available, the producer thread is blocked on the FBSEM mechanism 376." *Id.* at ll. 61-65. As applied to the claim, we find that the FBSEM mechanism 376 is used to control the producer 310 to stop storing data in the queue 372.

"Each time a client process releases a reference to a buffer, it clears its client bit from the buffer mask 364. If the buffer mask 364 becomes zero at this time, indicating the given buffer is now available, the client thread signals the FBSEM mechanism 376." Col. 7, l. 65 - col. 8, l. 2. As applied to the claim, we find that the buffer mask 364 and the FBSEM mechanism 376 are also used to control the producer 310 to be able to store data in the queue 372.

"[M]ail slots 340<sub>0</sub> through 340<sub>N-1</sub> are used to facilitate notification of the consumers . . . of the arrival of [data]." Col. 7, ll. 1-3. The consumers "listen to the

broadcast mail slots to wait for the arrival of [data]." Col. 8, ll. 6-8. "Each consumer . . . comprises . . . a consumer MUTEX mechanism 324, . . . [and] a consumer FBSEM mechanism 326, . . ." *Id.* at ll. 11-14. "The consumer MUTEX mechanism 324, and FBSEM mechanism 326, essentially perform similar tasks as the . . . producer MUTEX mechanism 314, and producer FBSEM mechanism 316 except that the interface is for the consumer side." *Id.* at ll. 14-19. As applied to the claim, we find that the mail slots 340, the consumer MUTEX mechanism 324, and the FBSEM mechanism 326 are used to control the consumers to consume data from the queue 372. Therefore, we affirm the anticipation rejection of claim 16 and of claims 1, 9-15, and 21-23, which fall therewith.

The appellants present no different arguments concerning claims 7, 19, and 26. Instead they assert "without elaboration, it is clear that each of the obviousness rejections are legally deficient on their face because *Woodring* fails to disclose claim elements of claims 1, 16 and 23 as [argued] above." (Appeal Br. at 11.) Having been unpersuaded by their abovementioned argument, we affirm the obviousness rejection of claims 7, 19, and 26.

B. CLAIM 3

The examiner argues, "the storage manager 350 (scheduler) of Fig. 4 would be generic to Fig. 1, and thus manage any producer-consumer . . . including the first and second queues. . . ." (Examiner's Answer at 20.) The appellants argue, "Woodring clearly does not disclose or remotely suggest that the storage manager (350) of the IPC channel (330) controls or otherwise manages a second queue, much less that the producer (310) consumes data from a second queue managed by the storage manager (350)." (Appeal Br. at 9.)

*1. Claim Construction*

"The Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry*, 32 F.3d 1579, 1582, 32 USPQ2d 1031, 1034 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 403-04 (Fed. Cir. 1983)). In particular, "[c]laims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim." 37 C.F.R. § 1.75.

Here, claim 3 recites the following limitations: "[t]he system of claim 1, wherein the data source comprises a consumer that consumes data stored in a second queue

that is controlled by the scheduler." Claim 1, from which claim 3 depends, recites in pertinent part the following limitations: "a data source for outputting the data that is stored in the first queue . . . and a scheduler for managing the storage and consumption of the data in the first queue and for controlling the data source and the plurality of consumers to control the amount of data stored in and consumed from the first queue." Considering all these claim limitations, claim 3 requires that the same scheduler controls both a first queue and a second queue.

## *2. Anticipation Determination*

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

*Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (citing *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 715, 223 USPQ 1264, 1270 (Fed. Cir. 1984); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983); *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983)). "[A]bsence from the reference of any claimed element negates anticipation." *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986).

Here, Figure 3 of Woodring "illustrat[es] one embodiment of the [reference's] software architecture 200. . . . The software architecture 200 comprises . . . a local multimedia Inter-Process Communication (IPC) channel 230, . . . a remote multimedia IPC channel 250, and a communication engine 260." Col. 4, ll. 56-62. "As will be appreciated by persons skilled in the art, the [aforementioned] IPC channel system architecture 300 is generic to any producer-consumer relationship, whether it is local or remote." Col. 6, ll. 10-12. Accordingly, the local multimedia IPC channel 230 and the remote multimedia IPC channel 250 will each include its own queue controlled by its own scheduler. The absence of a single scheduler that controls both queues negates anticipation. Therefore, we reverse the anticipation rejection of claim 3.

#### C. CLAIMS 4-6, 17, 18, 24, AND 25

The appellants argue claims 4-6, 17, 18, 24, and 25 as a group. (Appeal Br. at 9-10.) We select claim 4 from the group as representative of the claims therein.

The examiner refers to "col. 8, line 50 - col. 9, line 5," (Examiner's Answer at 6) of Woodring. The appellants argue, "There is simply no notion in Woodring regarding a consumer registering data requirements and priority requests with a 'scheduler', much

less a scheduler that assigns the consumers to a queue based on the registered requirements, as contemplated by the claimed inventions." (Appeal Br. at 10.)

### *1. Claim Construction*

"[L]imitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)). Here, claim 4 recites in pertinent part the following limitations: "each of the plurality of consumers performs a registration process with the scheduler." Giving the representative claim its broadest, reasonable construction, the limitations require the consumers to perform a registration process with a scheduler.

### *2. Anticipation Determination*

Anticipation "is not an 'ipsissimis verbis' test." *In re Bond*, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990) (citing *Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1479 & n.11, 1 USPQ2d 1241, 1245 & n.11 (Fed. Cir. 1986)). "An anticipatory reference . . . need not duplicate word for word what is in the claims." *Standard Havens Prods. v. Gencor Indus.*, 953 F.2d 1360, 1369, 21 USPQ2d 1321, 1328 (Fed. Cir. 1991).

Here, the consumer-side interface of Woodring, which was mentioned regarding claims 1, 7, 9-16, 19, and 21-23 *supra*, includes "a sample notification rate specification 458, an attribute specification 462, and a reference release 464." Col. 8, ll. 52-53. "The sample notification rate specification 458 specifies a desired sample rate at which to be notified of buffers being streamed in order to voluntarily reduce the amount of data being streamed to that client's process. The attribute specification 462 specifies a key attribute of the information stream (e.g., video resolution) that is use to match before sending out a buffer notification." Col. 8, l. 62 - col. 9, l. 2. We find that specifying the rate at which to be notified of buffers being streamed and specifying the video resolution of data being streamed teaches performing a registration process with a scheduler as claimed. Therefore, we affirm the anticipation rejection of claim 4 and of claims 5, 6, 17, 18, 24, and 25, which fall therewith.

#### D. CLAIMS 8, 20, AND 27

The examiner asserts, "Woodring clearly discloses prioritizing data consumption based on the amount of unread data. Each buffer (queue) holds an amount of unread data represented by the buffer size 368 (col. 7, lines 32-35). The consumers in turn read out this amount of unread data (col. 7, lines 13-35)." (Examiner's Answer at 21.) He adds the following assertions.

[O]nly when the last consumer assigned to a particular buffer releases the buffer after reading this amount of unread data will the buffer mask be set to zero (cleared), thereby allowing the buffer to become available for other data consumption (e.g., different consumers) (see e.g., col. 7, line 60 - col. 8, line 5). Therefore, the storage manager (scheduler) prioritizes data consumption by keeping the buffer allocated to a consumer based on an amount of unread data (buffer size) being present in the queue (col. 7, lines 13-35). That is, if there is an amount of unread data in the buffer, then the scheduler will prioritize data consumption by keeping the buffer allocated to the consumer.

(*Id.* at 21-22.) The appellants argue, "There is simply no reasonable basis for construing such teaching as 'prioritizing data consumption'. . . ." (Appeal Br. at 11.)

### *1. Claim Construction*

Claim 20 recites in pertinent part the following limitations: "prioritizing data consumption of the first queue based on an amount of unread data in the first queue of each of the plurality of consumers." Claims 8 and 27 include similar limitations. Considering all these claim limitations, claims 8, 20, and 27 require prioritizing data consumption based on an amount of unread data in the queue.

### *2. Anticipation Determination*

Upon review of the examiner's assertions, as well as the sections of Woodring cited therein, we agree with the appellants "that there is nothing that even remotely



discusses 'prioritizing' data consumption by [Woodring's] consumers. . . ." (Appeal Br. at 11.) Therefore, we reverse the anticipation rejection of claims 8, 20, and 27.

### III. CONCLUSION

In summary, the rejection of claims 1, 4-6, 9-18, and 21-25 under § 102(e) is affirmed, while the rejection of claims 3, 8, 20, and 27 under § 102(e) is reversed. The rejection of claims 7, 19, and 26 under § 103(a) is also affirmed.

"Any arguments or authorities not included in the brief will be refused consideration by the Board of Patent Appeals and Interferences. . . ." 37 C.F.R. § 1.192(a). Accordingly, our affirmance is based only on the arguments made in the brief. Any arguments or authorities omitted therefrom are neither before us nor at issue but are considered waived. *Cf. In re Watts*, 354 F.3d 1362, 1367, 69 USPQ2d 1453, 1457 (Fed. Cir. 2004) ("[I]t is important that the applicant challenging a decision not be permitted to raise arguments on appeal that were not presented to the Board.") No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a).

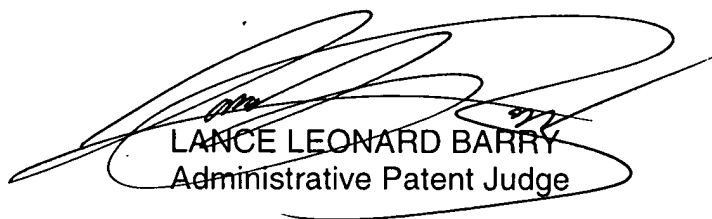
AFFIRMED-IN-PART



JOSEPH F. RUGGIERO  
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ANITA PELLMAN GROSS  
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LANCE LEONARD BARRY  
Administrative Patent Judge

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